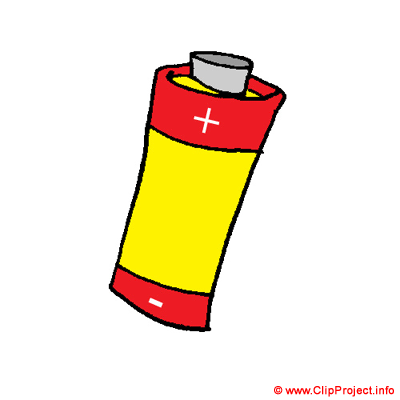
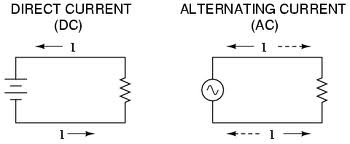
* A current of electricity is generated through the movement of electrons.
* A battery has a positive and a negative end
* Electrons are negative
* Electrons are attracted to the positive protons in the positive end of the battery.
* Electrons are repelled by the electrons in the negative end of the battery.



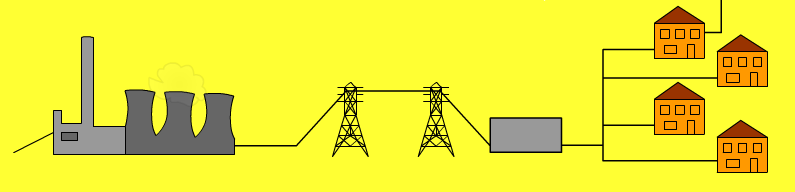


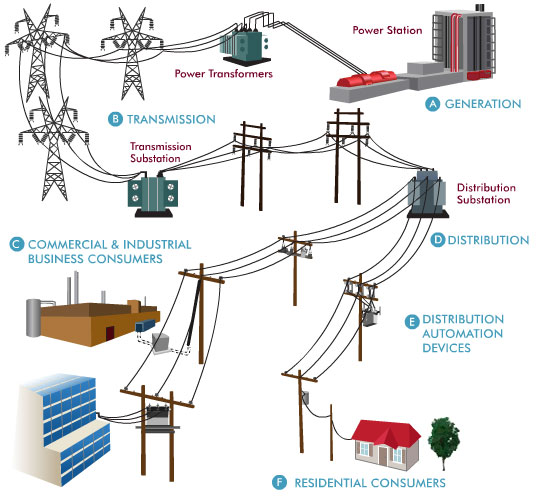
**There are two main types of current:**

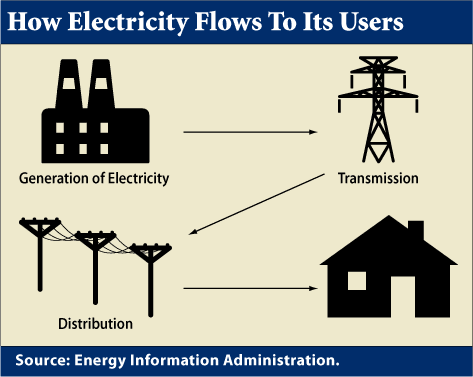
**1. Direct current:** negatively charged electrons that flow in one direction only

**2.** **Alternating current:** negatively charged electrons move in one direction for a very short time, and then they reverse direction. This happens over and over again.

* **Direct current** is used in a simple circuit with a battery, copper wire and a light bulb.
* **Alternating current** is what is used at the Mains Supply (power company).
* **Direct currents** can generate power, but the DC power transmission **loses a lot of energy**. The power companies have to put much more effort into sending DC power from the company to your house.
* The voltage produced at the power company can be changed in an **alternating current system** to transfer energy more efficiently.

 Substation transformers junction box outlet lamp



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* A **Grid system** is a vast, interconnected network for delivering electricity from suppliers to consumers. It consists of three main components:   
   **1)** generating plants that produce electricity from combustible fuels (coal, natural gas, biomass) or  
   non-combustible fuels (wind, solar, nuclear, hydro power)  
   **2)** transmission lines that carry electricity from power plants to demand centers  
   **3)** transformers that reduce voltage so distribution lines carry power for final delivery.
* **Scenario:** A customer on a grid system installed a wind turbine. The effect of this wind turbine on the entire power grid is that the unused electric power can be added to the grid, increasing the power available to other customers.